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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,208	07/20/2001	Jiro Hitomi	MM4454	4894

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EXAMINER	
HADDAD, MAHER M	

ART UNIT	PAPER NUMBER
1644	

NOTIFICATION DATE	DELIVERY MODE
06/10/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	09/910,208	HITOMI ET AL.	
	Examiner	Art Unit	
	Maher M. Haddad	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *22 and 24-27* is/are pending in the application.

4a) Of the above claim(s) *24-27* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/19/2010 has been entered.

2. Claims 22 and 24-27 are pending.

Newly submitted claim 27 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: new claim 27 is directed to a method of using a diagnostic agent while claim 22 is directed to a diagnostic agent comprising a monoclonal antibody to SEQ ID NO:19 or encoded by a nucleic acid sequence shown in SEQ ID NO:1. It is noted that the Restriction requiement mailed on 10/05/2004 placed the antibody of claim 22 in Group IV and an assay method for a calcium-bindign protien in Group V. Since the agents in claim 22 are monoclonal antibody and Applicant elected Group IV on 12/22/04, new claim 27 is drawn to non-elected invetion.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 27 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.147(b) and MPEP 821.03.

3. Claims 24-26 stand and claims 27 is withdrawn from further consideration by the Examiner, 37 C.F.R. § 1.142(b) as being drawn to a nonelected invention.

4. Claim 22 is under consideration in the instant application as they read on an antibody with binding affinity to a protein encoded by SEQ ID NO: 1.

5. Applicant's statement that SEQ ID NO: 19 correspond directly to SEQ ID NO: 1 as identified in the application as originally filed, and corresponds to SEQ ID NO:19 in the Amendment dated March 7, 2007 is not clear. Applicant did not account for the single amino acid change in SEQ ID NO: 19. The encoded amino acid sequence by SEQ ID NO:1 comprises Gln at position 17, however, the newly added SEQ ID NO:19, filed on 3/27/07, has Glu at position 17. Accordingly, it is not clear what did applicant mean by "correspond directly".

6. The specification stands objected to under 37 CFR 1.821(d) for failing to provide a sequence identifier for each individual sequence. Figures 1-2, on page 3, lines 15-32 has describe the amino acid sequence of bovine calcium-binding protein that must have a sequence identifier.

Correction is required. The amendment to the specification filed 9/22/05 fails to provide sequence identifier for the amino acid sequence of the bovine calcium-binding protein in figure 1.

7. The amendment filed 9/22/05 and 3/27/07 stand objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

i) The amendment filed on 3/27/07 to the computer readable form of the "Sequence Listing" with SEQ ID NO: 19 and 20 represents a departure from the specification and the claims as originally filed. Applicant does not point out for support for the newly added sequences. It is noted that the new SEQ ID NO: 19 contains ^{17}Glu, which was not found in original SEQ ID NO: 19 (^{17}Gln). Further, new SEQ ID NO: 20 contains ^{65}Asn, which was not found in original SEQ ID NO: 20 (^{65}Gln). The specification and the claims as originally filed have no support for the new replacement of SEQ ID NO: 19 and 20.

ii) Further, it is noted that the amendment to the specification filed 9/22/05 to page 3, ¶5 (Fig. 2), points to SEQ ID NO:2 as the amino acid sequence of bovine calcium-binding protein. However, SEQ ID NO: 2 is only 50 amino acids in length and do not correspond to the nucleic acids sequence in figures 1 or 2.

iii) The amendment filed on 9/22/05 to the specification on page 5, ¶3, substituting SEQ ID NO:1 or 12 for SEQ ID NO: 19 or 20 represents a departure from the specification and the claims as originally filed. The specification and the claims as originally filed have no support for the new replacement of SEQ ID NO: 1 or 12 with SEQ ID NO: 19 or 20. It is noted that there is no 1:1 correspondence between SEQ ID NO: 1 or 12 and SEQ ID NO: 19 or 20, respectively.

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claim 22 stands rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification as originally filed does not provide support for the invention as now claimed. *This is a New Matter rejection for the following reasons*:

The phrases "SEQ ID NO: 19" claimed in claims 22-23 and "these lineages" claimed in claim 22, line 3 represents a departure from the specification and the claims as originally filed for the same reasons set forth in the previous Office Actions.

Applicant's arguments, filed 04/19/2010, have been fully considered, but have not been found convincing.

Applicant submits that the amendment filed by Applicant on March 27. 2007 showing Glu at position 17 constitutes nothing more than a typographical error and should be ignored by the Examiner.

However, this "typographical error" introduces a new matter to the disclosure under 35 U.S.C. 132, Accordingly, it should not be ignored by the Examiner. In the mailed on 06/03/2010, Applicant proposed to amend SEQ ID NO: 19 at position 17 Gln(Q) and SEQ ID NO: 20 at position 65 to Gln(Q) to overcome the new matter issues. The Examiner indicates that such amendment would be sufficient to overcome both the new matter rejection and objection.

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claim 22 stands rejected under 35 U.S.C. 102(b) as being anticipated by Kelly *et al* (J. Patho. 1989) as is evidenced by Guignard et al (Feb 1996).

Kelly et al teach monoclonal antibodies to study the expression of calgranulins by keratinocytes in inflammatory dermatoses. Kelly et al also teach that calgranulins are intracellular calcium binding proteins which have inflammatory cytokine activity. Further, Kelly et al teach that MAC 387 monoclonal antibody that recognizes a molecule probable containing both calgranulin A and B (see abstract in particular). MAC 387 monoclonal antibody also binds amino acid sequence encoded by SEQ ID NO: 19, as is evidenced by Guignard et al (Feb 1996) that the immunoreactivity of MAC 387 was compared with that of a polyclonal antibody raised against purified MRP-8, but cross-reacting with MRP-14, and p6 (hCAAF1/S100A12), a novel S100 protein. Under such conditions, Mac 387 was found to recognize the three S100 proteins (see abstract in particular). Guignard et al concluded that the MAC 387 might recognize an epitope common to the proteins of the S100 family (see abstract last sentence). Guignard et al teach that all the S100 proteins have amino acid sequence and secondary-structure similarities in very specific and conserved regions which are the N- and C-terminal hydrophobic amino acid domains. They are also characterized by the presence of two calcium-binding sites called EF-hand, that contain 14 and 12 amino acids. Interestingly, the 14 amino acid EF-hand is conserved in all S100 proteins and is located in a conserved basic domain near the N-terminal part of the

protein while the 12 amino acid EF-hand is located in a conserved acidic domain in the C-terminal region. These similarities make the generation of specific antisera difficult due to structural conservation and might explain the cross-reactivity of Mac 387 with MRP-14, MRP-8 and P6. If this mAb recognizes an epitope common to the proteins of S100 family, its use might allow the diction of novel members of this family (see page 106, under Discussion). Given that the human an bovine CAAF1 share 66% sequence homology, the reference MAC 387 would bind the claimed bovine sequence of SEQ ID NO:19, in the absence of evidence to the contrary.

Since the office does not have a laboratory to test the reference antibodies, it is applicant's burden to show that the reference antibody does not bind to the SEQ ID NO:19 recited in the claim. See In re Best, 195 USPQ 430, 433 (CCPA 1977); In re Marosi, 218 USPQ 289, 292-293 (Fed. Cir. 1983); and In re Fitzgerald et al., 205 USPQ 594 (CCPA 1980).

Applicant's arguments, filed 04/19/2010, have been fully considered, but have not been found convincing.

Applicant submits that the Examiner does not identify the similarities among the S100 family proteins, which are known to support this allegation, or to support the alleged cross-reactivity. Further, Applicant submits that this is not consistent with a rejection under 35 USC 102, since it is based on assumptions made by the Examiner and not on the direct or inherent teaching in Kelly. There is no teaching in Kelly et al of a diagnostic agent for inflammatory diseases which comprises a monoclonal antibody specific to a calcium-binding protein comprising an amino acid sequence shown in SEQ ID NO: 19 or encoded by a nucleic acid sequence shown in SEQ ID NO: 1 as is recited in claim 22. Applicant concluded that claim 22 is clearly novel and the rejection under 35 USC 102 based on anticipation should be withdrawn.

However, the rejection clearly states that all the S100 proteins have amino acid sequence and secondary-structure similarities in very specific and conserved regions which are the N- and C-terminal hydrophobic amino acid domains. They are also characterized by the presence of two calcium-binding sites called EF-hand, that contain 14 and 12 amino acids. Interestingly, the 14 amino acid EF-hand is conserved in all S100 proteins and is located in a conserved basic domain near the N-terminal part of the protein while the 12 amino acid EF-hand is located in a conserved acidic domain in the C-terminal region. Given that the bovine calcium-binding protein comprising the amino acid sequence SEQ ID NO: 19 is S100, it must has the structural similarities of the S100 taught by Guignard et al.

With respect to the issue that Kelly et al do not teach a diagnostic agent for inflammatory diseases, the Examiner notes that the claim recites the same products and the intended uses do not carry patentable weight per se and the claims read on the active or essential ingredients of the monoclonal antibody and thus impart no patentable weight on the claim (see MPEP 2111.02, section II). Therefore, it is irrelevant that the reference did not appreciate the intended purpose of the claimed diagnostic agent. Regardless, the monoclonal antibody agent of the Kelly et al. reference is not incompatible with a diagnostic intention.

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> *(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.*

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

14. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dell'Angelica (JBC, 269(46): 28929-28936, 1994) as evidenced by the specification disclosure on page 40, lines 6-9, Bost et al. (Immunol. Invest. 1988; 17:577-586), in view of Alisa Campbell (General properties and applications of monoclonal antibodies, Elsevier Science Publishers, 1984, section 1.1) OR U.S. Pat. No. 5,654,403.

Dell'Angelica et al teach the primary structure (see Fig. 4) and binding properties of pig calgranulin C, S100-like calcium-binding protein from pig granulacytes. Dell'Angelica et al teach that the pig calgranulin C consists of 91 residues. Sequence analysis predicts two EF-band calcium-binding motifs (see Fig. 8), the first having an extended loop that is distinctive of the S100 protein family. Dell'Angelica et al teach that their results and the calcium-dependent binding of the protein to a phenyl-Superose column strongly suggest that calgranulin C undergoes a gross conformational change upon calcium binding thus supporting the idea that this protein may be involved in Ca2-dependent signal transduction events (see abstract). The reference pig calgranulin C sequence has 79% sequence identity to claimed SEQ ID NO: 19. See below:

```
Qy          1 MTKLEDHLEGIINIFHEYSVRVGHFDTLNKRELKQLITKELPKTLQNTKDQPTIDKIFQD 60
              |||||||||||||||||:||||:||:||| |||||||||||||| ||:|||||| |||||||:
Db          1 MTKLEDHLEGIINIFHQYSVRLGHYDTLIKRELKQLITKELPNTLKNTKDQGTIDKIFQN 60

Qy         61 LDADKDGAVSFEEFVVLVSRVLKTAHIDIHKE 92
                 |||::|  |||:|||||||: || ||| :|||| 
Db         61 LDANQDEQVSFKEFVVLVTDVLITAHDNIHKE 92
```

The reference pig calgranulin C sequence has 81% sequence identity to claimed calcium-binding protein encoded by a nucleic acid sequence shown in SEQ ID NO: 1. See below:

```
              51 ACTAAGCTGGAAGATCACCTGGAGGGAATCATCAACATCTTCCACCAGTACTCCGTTCGG 110
                 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db             1 ThrLysLeuGluAspHisLeuGluGlyIleIleAsnIlePheHisGlnTyrSerValArg 20

Qy           111 GTGGGGCATTTCGACACCCTCAACAAGCGTGAGCTGAAGCAGCTGATCACAAAGGAACTT
170
                 :::||||||:::|||||||||   ||||||||||||||||||||||||||||||||||||
Db            21 LeuGlyHisTyrAspThrLeuIleLysArgGluLeuLysGlnLeuIleThrLysGluLeu 40

Qy           171 CCCAAAACCCTCCAGAACACCAAAGATCAACCTACCATTGACAAAATATTCCAAGACCTG
230
                 |||   ||||||:::|||||||||||||||   ||||||||||||||||||||:::|||
Db            41 ProAsnThrLeuLysAsnThrLysAspGlnGlyThrIleAspLysIlePheGlnAsnLeu 60

Qy           231 GATGCCGATAAAGACGGAGCCGTCAGCTTTGAGGAATTCGTAGTCCTGGTGTCCAGGGTG
290
                 ||||||:::::::|||      |||||||||:::||||||||||||||||||:::   |||
Db            61 AspAlaAsnGlnAspGluGlnValSerPheLysGluPheValValLeuValThrAspVal 80

Qy           291 CTGAAAACAGCCCACATAGATATCCACAAAGAG 323
                 |||   |||||||||   :::||||||||||||
Db            81 LeuIleThrAlaHisAspAsnIleHisLysGlu 91
```

Dell'Angelica et al teach that both tryptic (T1-T11) and V8 protease (V1-V11) peptides were separated by RP-HPLC and subsequently submitted to amino acid analysis and/or Edman degradation (see fig. 3 and 4). Dell'Angelica et al teach that the sequence of T9 was identical to that of residues 1-17 (MTKLEDHLEGIINIFHEY, i.e., 100% identical to the N-terminus of the encoded peptide of SEQ ID NO:1) and was assumed to originate from a residual chymotryptic activity. Peptide T3 (QLITK) is 100% identical to the peptide of SEQ ID NO: 19.

The claimed invention differs from the reference teachings only by the recitation of an antibody specific to a calcium-binding protein comprising an amino acid sequence shown in SEQ ID NO. or encoded by a nucleic acid sequence shown in SEQ ID NO: 1 in claims 22-23.

However, it has been held that once the antigen of interest is selected, the use of that antigen in the known method of Kohler and Milstein will result in the expected hybrid cell lines and the specific monoclonal antibodies. Ex parte Erlich, 3 USPQ2d 1011, 1015 (BPAI 1986).

Moreover, Campbell teaches that it is customary now for any group working on a macromolecule to both clone the genes coding for it and make monoclonal antibodies to it (see page 3 figure 11.1 in particular). One field of research in which monoclonal antibodies may prove of particular value is in the study of chromosomal proteins. The search for those chromosomal proteins which are responsible for determining cell phenotype has been particularly long and comparatively fruitless and monoclonal antibodies are ideal tools for the dissection of the complex mixture of proteins. As hybridoma production becomes a more routine laboratory technique (see page 29 and 30 under Basic research in particular).

The `403 patent teaches that the advantages of hybridoma technology are profound. Because

many hybrids arising from each spleen are screened for their potential to produce antibodies to the antigen of interest and only a few are selected, it is possible to immunize with impure antigens and yet obtain specific antibodies. The immortality of the cell line assures that an unlimited supply of a homogeneous, well-characterised antibody is available for use in a variety of applications including in particular diagnosis and immunotherapy of pathological disorders. (see col., 1, lines 41-57 in particular).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make a monoclonal antibody as taught by Campbell against the pig calgranulin C or fragments thereof taught by Dell'Angelica et al.

One of ordinary skill in the art at the time the invention was made would have been motivated to do so because it was customary at the time the invention was made to make monoclonals against any new macromolecule as taught by Campbell.

Given that the pig calgranulin C, S100-like calcium-binding protein is involved in Ca2-dependent signal transduction events, it would have been obvious to one of ordinary skill in the art at the time the invention was made to produce monoclonal as taught by the `403 patent using the T3 or T9 peptide sequences taught by Dell'Angelica et al.

One of ordinary skill in the art at the time the invention was made would have been motivated to do so because such method will obtain specific antibodies. The immortality of the cell line assures that an unlimited supply of a homogeneous, well-characterized antibody is available for use in a variety of applications including in particular diagnosis and immunotherapy of pathological disorders as taught by the `403 patent. Further, because the humanized antibodies are less immunogenic in clinical setting as taught by `403 patent.

The resultant antibody would bind to the bovine CAAF1 of SEQ ID NO: 19 becaue T3 and T9 paeptides share 100% sequence identity with SEQ ID NO:19.

Further evidence came from Bost *et al* that an antibody "cross-reacts", i.e. binds to more than one protein sequence, mean that "specifically bind" with both proteins. Bost et al (Immuno. Invest. 1988 ;17:577-586) describe antibodies which "cross-react" with IL-2 and HIV envelope protein, but establish that the binding of each protein is due to the presence of a homologous sequence in each protein in which 4-6 residues were identical (see entire document, especially the Abstract and Discussion).

From the combined teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Applicant's arguments, filed 04/19/2010, have been fully considered, but have not been found convincing.

Applicant asserts that the novelty and non-obviousness of the protein SEQ ID NO: 19 in comparison to other all known proteins in the S100 family of proteins at the time of filing. Applicant concluded that such novelty and non-obviousness applies equally as well to the proteins of the S100 family taught in Dell'Angaelica.

However, antibodies are distinct form proteins. Further, in the antibody art, cross-reactivity of prior disclosed antibodies with SEQ ID NO: 19 and the protein encoded by SEQ ID NO: 1 read on the claimed invention.

Applicant submits that claim 22 is directed to a diagnostic agent limited to an antibody specific to a calcium-binding protein comprising an amino acid sequence shown in SEQ ID NO: 19. The detailed declaration of Dr. Weber clearly explains why a protein in the S100 family, having a 79% sequence identity or even an 81% sequence identity to that of SEQ ID NO:19, is not a basis for alleging obviousness between different proteins in the S100 family. Applicant concluded that there is no basis for the allegation that the selection of the antigen in the use of a diagnostic agent claimed in claim 22 is obvious from the teaching in Dell'Angelical of pig calgranulin C or fragments thereof. The comparison by the Examiner of pig calgranulin C in Dell'Angelica based on a 79% sequence identity to SEQ ID NO: 19 is dependent upon conjecture and a showing of similarity in the N-terminus of the peptide of SEQ ID NO:1. Applicant admits that all of the proteins in the S-100 family have similarities and the sequence listing of each is identical up to about 85% but yet differ to a substantial extent. The similarity does not justify a conclusion of obviousness between members of the S-100 protein family.

However, T3 and T9 sequences share 100% sequence identity with the calcium-binding protein encoded by SEQ ID NO:1. An antibody to against either T3 sequence or T9 sequence would bind to the claimed calcium-binding protein. The intended diagnostic use of the antibody for inflammatory diseases would be expected properties of the resultant antibodies.

15. No claim is allowed.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maher Haddad whose telephone number is (571) 272-0845. The examiner can normally be reached Monday through Friday from 7:30 am to 4:00 pm. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

June 4, 2010

/Maher M. Haddad/
Primary Examiner,
Art Unit 1644